

Serial No.: 10/647,321

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered). Please CANCEL claims 1-34 and ADD new claims 35-43 in accordance with the following:

1.-34. (cancelled)

35. (new) An optical amplifier comprising:

a plurality of optical amplification mediums;
a gain controller to maintain a constant gain for the plurality of optical amplification mediums; and

a gain-equalizer positioned after each optical amplification medium to equalize the gain-characteristic of the optical amplification mediums, the optical amplifications mediums being provided in series such that each gain equalizer equalizes the gain characteristics of a preceding optical amplification medium.

36. (new) An optical amplifier according to claim 35, wherein the gain equalizers have nearly the same equalizing characteristic.

37. (new) An optical amplifier according to claim 35, wherein the optical amplifier mediums have nearly even gain characteristics.

38. (new) An optical amplifier according to claim 35, wherein the optical amplification mediums are made of erbium doped fibers.

39. (new) An optical amplifier according to claim 35, wherein the constant gain of the optical amplification mediums is associated with an inversion ratio of about 0.8 to about 1.0 within the amplification medium.

Serial No.: 10/647,321

40. (new) An optical amplifier according to claim 35, wherein the optical amplification mediums are semiconductor optical amplifiers

41. (new) An optical amplifier according to claim 35, wherein the gain equalizer obtains equalized gain within a wavelength-band from about 1490 nm to about 1530 nm.

42. (new) An optical amplifier according to claim 35, wherein each gain equalizer attenuates gain at a peak wavelength.

43. (new) An optical amplifier according to claim 35, wherein the gain controller is a laser oscillator.